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ABSTRACT

A preliminary report on a long-term empirical investigation of advanced language acquisition in a study-abroad environment is presented. The project is based on an American Council of Teachers of Russian (ACTR) longitudinal study of the gains in Russian language competence demonstrated by American students in semester-long language programs in Moscow and Leningrad. Six-year data include student information on age, gender, citizenship, country of birth, place and levels of formal education, and information on all prior training in the Russian language. Analysis of test results in oral, listening, and reading proficiency shows that the immersion experience produces significant gains in language proficiency achieved by a variety of American college-level learners of Russian. One of the conclusions is that at any given initial level, the better prepared the student is on reading/grammar the more the student tends to gain. Also, the Modern Foreign Language Aptitude Test (MLAT) is shown to be a valid predictor of success in developing reading and listening skills in Russian, although it does not serve to predict oral proficiency gain as measured by the standard Oral Proficiency Interview (OPI). Another finding is that the gains are significantly higher for males than for females, a phenomenon that may be influenced by communication interactions in-country. Contains 13 references. (LB)

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# On Evaluating Language Proficiency Gain in Study Abroad Environments:

## An Empirical Study of American Students of Russian

### (A Preliminary Analysis of Data)

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## 0. Introduction

The present study constitutes a preliminary report on a long-term empirical investigation of advanced language acquisition in a study-abroad environment. The report consists of four parts: Section One sketches the broad context of cognitive research which has motivated and guided this study. Section Two describes the project itself, its scope, methodology, goals, and the specific variables examined. Section Three contains the analysis of the data, and Section Four offers a preliminary discussion of these results.

This paper was presented in Russian at the VII International Congress of MAPRIAL, Moscow, August, 1990.

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The project has been funded by the United States Department of Education with the collaboration and support of the American Council of Teachers of Russian (ACTR) and the National Foreign Language Center (NFLC). It is based on an ACTR longitudinal study of the gains in Russian language competence demonstrated by American students in semester-long language programs in Moscow and Leningrad.[1]

## 1.0 Guiding Principles

The long-range, empirical study of the "value added" by immersion experience in a study-abroad environment is a central element in the second language acquisition research agenda. Empirical in its approach and anchored within the research agenda of contemporary cognitive science, the study has implications for foreign language and international studies policy.

## 1.1 Policy Ramifications of Empirical Research

Whether charged with starting a new program or evaluating and revising an existing one, whether making sweeping curricular changes or deciding on a specific course offering for a particular semester, program directors and foreign language administrators at all levels frequently set and implement policy.

Wherever possible, foreign language training policy should be formulated and guided by empirical research on second language acquisition.[2] The following questions exemplify the kinds of issues policymakers may address to the research community:

- What adjustments should be made between domestic and study-abroad learning, between beginning and advanced level learning?
- What is the best and most cost-effective study-abroad program? How can a program be evaluated?

- Should students be advised of probabilities of their success in a study-abroad program?
- Should programs abroad be adjusted to accommodate different types of students: majors vs. non-majors, literature/linguistics vs. areas studies majors, humanities vs. science majors? If so, at what level of acquisition should "language for special purposes" be undertaken?
- Should the study-abroad experience be an obligatory part of an undergraduate FL program, and where in the program does it most appropriately fit?
- Is study-abroad more or less cost-effective than domestic instruction?
- Is the process of foreign language acquisition in an in-country immersion environment different from domestic classroom instruction, and how is it different?[3]
- What level of proficiency is expected of students finishing a study-abroad program? Beginning a program?
- Are the structured, semi-structured, and unstructured environments organized, supported, and interrelated?
- Do testing and evaluation adequately reflect the skills acquired abroad?

These questions represent only a sample of the kinds of information required by program advisors and policymakers. Although researchers cannot provide definitive answers to many of the above questions, the present study is pertinent to several of them.

## 1.2 The Research Agenda for Second Language Acquisition (SLA)

While policy questions affect the need for research on study abroad, our scientific concern is to provide empirical evidence for the efficacy of this mode of language acquisition. Our general approach is

grounded in the relatively new and developing fields of SLA and "cognitive science," an amalgam of related concerns in psychology, computer science, linguistics, philosophy, and neuroscience. The research agenda for SLA is still evolving, just as it is for cognitive science as a whole,[4] and is concerned with the nature of knowledge of L2 (declarative and procedural) and the nature of learning. Given that the dependent variable of the present study is a measurement of gain derived from pre-and post-program psychometric instruments, the research presented here is best viewed from the perspective of learning as a process of input, internal processing, and output.[5] A general overview of SLA is presented in Exhibit One.

The variables in the present study are concerned with input (beginning level of L2 knowledge and learner differences) and output (post-program assessment of L2 knowledge). Exhibit One makes clear, though, that there is much more to be measured in input, particularly the contexts of learning and the language used and heard, and much to be investigated with regard to the psychological and cognitive factors involved in the learning process itself.

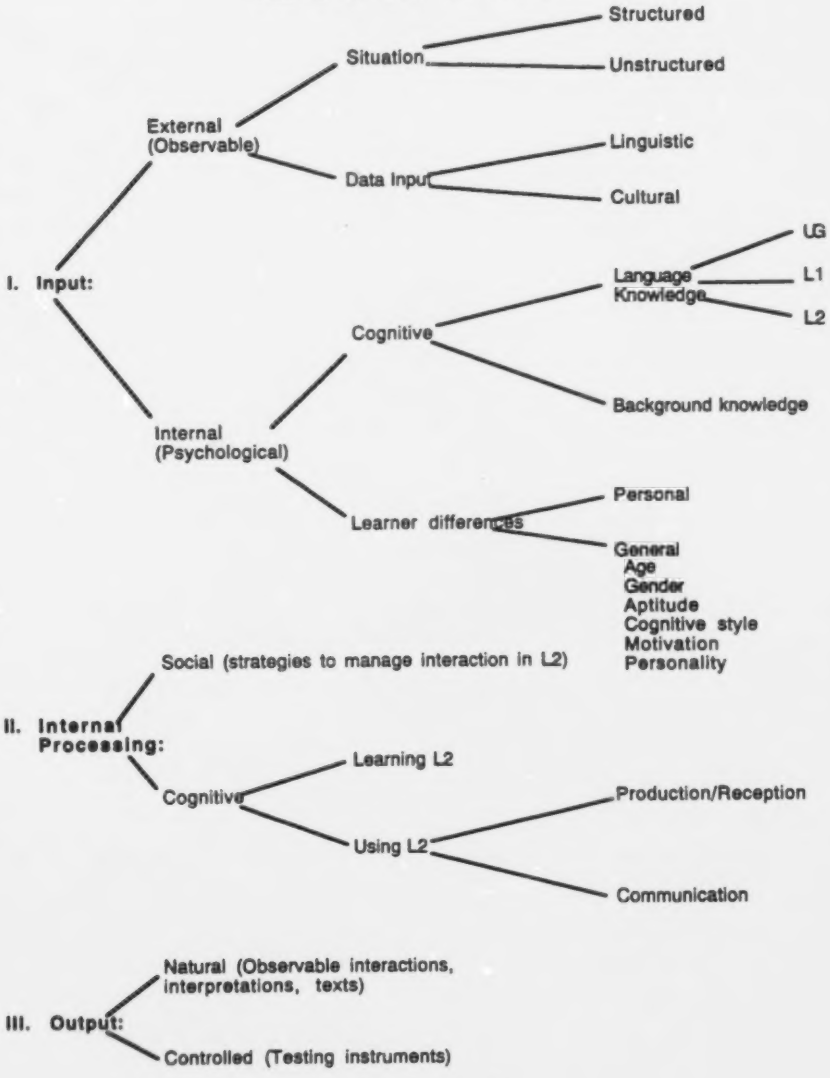
## 2. The ACTR/NFLC Project

The goal of the ACTR/NFLC project is the determination of factors which correlate with "gain" in Russian language ability as a result of long-term study in the Soviet Union.[6] The data bank serving as the base of this study was established by ACTR, an organization which, as a part of its overall professional mission, executes the largest academic exchange program between the Soviet Union and the United States (see Exhibit Two). For 15 years, records of university students studying Russian for one semester in, at present, eight Soviet institutes in Moscow and Leningrad have been systematically converted to machine readable form using a modified form of the "Paradox" data base system. Records include the material on the student application forms, data gathered in the regular common briefing and debriefing sessions, transcripts from Soviet institutes, and reports from ACTR academic program officers in the Soviet Union.

From the beginning, the data collected by ACTR has not been limited to that needed for executing the exchanges; rather, academic

policy ramifications were always a consideration.[7] The present project was designed, first, to establish the basis for determining the success of a program with regard to quality and cost-effectiveness and to evaluate existing programs; second, to improve program design, implementation, and cost-effectiveness; third, to determine the best predictors of success in a language learning career, particularly at the more advanced levels, with the ultimate goal of selection and placement of students in specific programs. A further goal was added to the present USED-funded project, that is to establish and make available to different (particularly less-commonly taught) languages a model for the collection of empirical data on SLA.

## Exhibit One
## An Overview of SLA





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## 2.1 Classification of Variables

The starting point for this study is the output, specifically the measurement of L2 "gain," by American students in a number of ACTR-affiliated institutions in Moscow and Leningrad. Since 1976, ACTR has maintained records pertaining to the general academic, biographical, and in-country language performance of more than two thousand American students and graduate students who have completed long-term language training programs in the USSR under ACTR auspices. During most of the recording period, participants have typically been at the B.A. or immediate post-B.A. level, 22.2 years of age, with undergraduate major or equivalent preparation in Russian language and area studies, with or without other academic specializations. Due to previous limitations imposed by the Soviet government on the number of Americans permitted to study in the USSR, competition in the US for places in the ACTR programs was keen with as many as 4-6 qualified Russian majors or graduate students in the field applying for each position abroad. The resulting escalation of *de facto* qualifying standards worked to the advantage of students from institutions with intensive summer training and considerable advanced-level formal course work (competency-based language courses beyond the third-year college level), effectively limiting to a significant degree the number of participants from smaller Russian departments throughout the US.[8]

A steady increase in the number of positions for study in the USSR since 1985 (from 110 persons in 1984-85 to 520 persons in 1989-1990) has been accompanied by a doubling in the number of sending institutions in the US, reflecting a greater diversity of institutional types and geography than was the case in earlier years. At the present time a total of 195 colleges and universities have placed students or faculty in the ACTR programs. Exhibit Two lists American Colleges and Universities arranged in order of the number of students placed in ACTR long-term (primarily semester) programs between 1976 and 1989. In the case of participants who have either graduated or received their training at more than one institution, the current or most recent institutional affiliation is cited. The listing reveals a range of geographically diverse public and private institutions including small colleges and large comprehensive universities. A diversity of types of Russian language training

programs are represented among the top 65 institutions, no one of which accounts for more than six percent of the total ACTR data base.

The six-year sample selected for analysis in the present study includes background data on age, gender, citizenship, country of birth, place and levels of formal education (including highest degree taken), major field(s), and information on all prior training in the Russian language, including number of contact hours, prior experience abroad, experience in intensive stateside courses, secondary school programs, language laboratory, and knowledge of other Slavic and non-Slavic languages. Also included in the data base for each student record is the academic year and type of program completed (summer, semester, academic year) and host institution in the USSR. (See Exhibit Three: ACTR Student Record System Semester Program Data Directory, 1984-89).

Pre- and post-program standardized tests include (since 1984) oral proficiency interviews (OPI) administered by ACTFL or government-certified specialists trained in the elicitation of Russian speech samples rateable in terms of a common five-point metric of functional competency in the language (see Exhibit Four). Pre- and post-program OPI testing is normally recorded on audio cassettes, and, in certain cases, has been subjected to reconfirmation by additional certified testers. Comparable proficiency-based standardized testing for reading and listening in Russian was developed by the Educational Testing Service (ETS) in cooperation with the Russian language teaching field and introduced in the mid-1980s. Available in two forms and administered under secure and controlled conditions, these standardized tests are machine-graded and reported regularly by ETS directly to ACTR where they are added to the student records data base both as weighted raw scores and as proficiency-rating conversions, pre- and post-program, for all participants.

## Exhibit Two

## College and University Participation in ACTR Programs

*Top 65 Colleges Arranged by Number of ACTR Program Participants*
*Semester Programs 1976-89*

| Academic Affiliation | Number of Program Participants |
|---|---|
| Bryn Mawr College | 68 |
| Harvard University | 60 |
| Pennsylvania, University of | 50 |
| Columbia University | 41 |
| Georgetown University | 37 |
| Yale University | 36 |
| Grinnell College | 31 |
| Iowa, University of | 30 |
| Northwestern University | 30 |
| Wesleyan University | 30 |
| Michigan, University of | 29 |
| Amherst College | 26 |
| Brown University | 25 |
| Maryland, University of — College Park | 23 |
| Indiana University | 21 |
| Oregon, University of | 21 |
| Princeton University | 20 |
| George Washington University | 18 |
| California, University of — Berkeley | 18 |
| Williams College | 17 |
| Texas, University of — Austin | 17 |
| Cornell University | 15 |
| Illinois, University of — Urbana | 14 |
| Haverford College | 13 |
| Middlebury College | 13 |
| Wisconsin, University of | 13 |
| Virginia, University of | 13 |
| Bowdoin College | 13 |
| Chicago, University of | 12 |
| California, University of — Santa Cruz | 12 |
| Stanford University | 12 |
| Brigham Young University | 11 |
| Carleton College | 10 |
| Swarthmore College | 9 |
| Washington, University of | 9 |
| New Hampshire, University of | 8 |
| Reed College | 8 |
| Trinity College — Connecticut | 8 |
| California, University of — Davis | 8 |
| George Mason University | 8 |
| California, University of — Los Angeles | 8 |
| Minnesota, University of | 7 |
| Principia College | 7 |
| Vermont, University of | 7 |
| Mount Holyoke College | 7 |
| Trinity University | 7 |
| James Madison University | 7 |
| New York University | 7 |
| Dartmouth College | 7 |
| Wellesley College | 6 |
| Maryland, University of — Baltimore County | 6 |
| Massachusetts, University of — Amherst | 6 |
| Vanderbilt University | 6 |
| American University | 6 |
| New Mexico, University of | 5 |
| North Carolina, University of — Chapel Hill | 5 |
| North Iowa, University of | 5 |
| Tufts University | 5 |
| Monterey Institute of International Studies | 5 |
| Oklahoma State University | 5 |
| Pomona College | 5 |
| Illinois, University of — Chicago | 5 |
| Arizona, University of | 5 |
| Rutgers University — Rutgers College | 5 |
| Barnard College | 5 |
| *100 Other Colleges and Universities* | *198* |
| *Total* | *1195* |



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## Exhibit Three

## ACTR Student Record System

### Semester Program Data Only, 1984-89

Data Dictionary — Listing of Student Record Fields Recoded and Transferred

| Field Name | Range | Descriptive Note |
|---|---|---|
| Program Year | 1984-89 | Total of 466 students ranging over 6 years |
| Program Type | | Semester program students in Fall or Spring |
| Highest Degree | 1-4 | See Code Listing Report |
| Major of Highest Degree | 1-6 | See Code Listing Report 1 = Russian... |
| Study Institute | 1-6 | See Code Listing Report 1 = Pushkin... |
| Date of Birth | | |
| Age | 17-38 | Assessed as age at application |
| Sex | 1-2 | 1 = Female, 2 = Male |
| Country of Birth | 1, 2, 3, 5 | 1 = USA, 2 = Canada, 3 = Europe, 5 = Other |
| Years High School Russian | | |
| Years College Russian | 0-9 | |
| Total Class Hours/Week | 0-152 | Sum of hours per semester |
| Total Lab Hours/Week | | Sum of hours per semester |
| Number of Slavic Languages | 0-1 | Number of other Slavic languages studied |
| Number of Non-Slavic Lang. | 0-6 | Number of non-Slavic languages studied |
| Number of Prev. USSR Immr | 0-3 | Number of immersion studies in Soviet Union |
| MLAT III | Continuous | Modern Language Aptitude Test Section |
| MLAT IV | Continuous | Modern Language Aptitude Test Section |
| MLAT V | Continuous | Modern Language Aptitude Test Section |
| MLAT Short Form Raw | Continuous | MLAT III + MLAT IV + MLAT V |
| Qualify Grammar | Continuous | Number right/Base |
| Qualify Reading | Continuous | Number right/Base |
| Pre-ETS Listening | Continuous | Current ETS tests begun in 1986 |
| Pre-ETS List Profic | to 40, 03-07 | 01 = 0, 02 = 0+, 03 = 1, 04 = 1+, 05 = 2, 06 = 2+, 07 = 3 |
| Post-ETS Listening | Continuous | |
| Post-ETS List Profic | 01-07 | 01 = 0, 02 = 0+, 03 = 1, 04 = 1+, 05 = 2, 06 = 2+, 07 = 3 |
| ETS Listening Change | Continuous | Difference in Post-Pre plus 100 |
| Pre-ETS Reading | Continuous | |
| Pre-ETS Read Profic | 01-07 | 01 = 0, 02 = 0+, 03 = 1, 04 = 1+, 05 = 2, 06 = 2+, 07 = 3 |
| Post-ETS Reading | Continuous | |
| Post-ETS Read Profic | 01-07 | 01 = 0, 02 = 0+, 03 = 1, 04 = 1+, 05 = 2, 06 = 2+, 07 = 3 |
| ETS Reading Change | Continuous | Difference in Post-Pre plus 100 |
| Pre-Oral Proficiency | 01-07 | 01 = 0, 02 = 0+, 03 = 1, 04 = 1+, 05 = 2, 06 = 2+, 07 = 3 |
| Post-Oral Proficiency | 01-07 | 01 = 0, 02 = 0+, 03 = 1, 04 = 1+, 05 = 2, 06 = 2+, 07 = 3 |
| Intellectual Motivation | 0-5 | Director's Evaluation 0 = Low, 5 = High |
| Natural Ability to Learn | 0-5 | Director's Evaluation 0 = Low, 5 = High |
| Willingness—Use Russian | 0-5 | Director's Evaluation 0 = Low, 5 = High |
| Cultural Adaptability | 0-5 | Director's Evaluation 0 = Low, 5 = High |
| Willingness—Cultural Opp. | 0-5 | Director's Evaluation 0 = Low, 5 = High |
| Ability to work in group | 0-5 | Director's Evaluation 0 = Low, 5 = High |
| Leadership Potential | 0-5 | Director's Evaluation 0 = Low, 5 = High |

*Records filtered by the three following rules:*

*Student age at application must be less than 40 years.*
*Student must not be born in Slavic speaking country.*
*Student must not speak more than one other Slavic language.*



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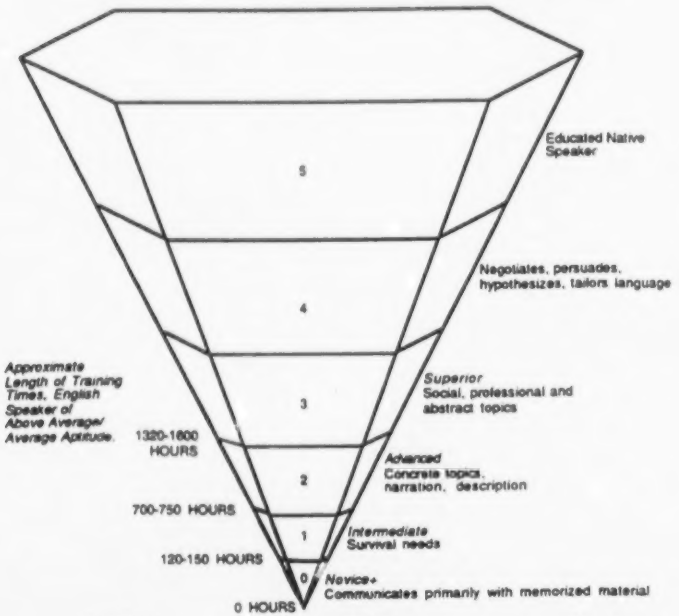
## Exhibit Four
## Inverted Pyramid of Language Proficiency, and Functional Tri-Section for Speaking




| Level | Functions | Content | Accuracy |
|---|---|---|---|
| Speaking Level | Task accomplished, attitudes expressed, tone conveyed. | Topics, subject areas, activities, and jobs addressed. | Acceptability, quality, and accuracy of message conveyed. |
| 5 | Functions equivalent to an Educated Native Speaker (ENS). | All subjects. | Performance equivalent to Educated Native Speaker. |
| 4 | Able to tailor language to fit audience, counsel, persuade, negotiate, represent a point of view, and interpret for dignitaries. | All topics normally pertinent to professional needs. | Nearly equivalent to ENS. Speech is extensive, precise, appropriate to every occasion with only occasional errors. |
| 3 | Can converse in formal and informal situations, resolve problem situations, deal with unfamiliar topics, provide explanations, describe in detail, support opinions, and hypothesize. | Practical, social, professional, and abstract topics, particular interests, and special fields of competence. | Errors never interfere with understanding and rarely disturb the ENS. Only sporadic errors in basic structures. |
| 2 | Able to fully participate in casual conversations; can express facts; give instructions; describe, report on, and provide narration about current, past, and future activities. | Concrete topics such as own background, family, and interests, work travel, and current events. | Understandable to NS not used to dealing with foreigners; sometimes miscommunicates. |
| 1 | Can create with the language; ask and answer questions, participate in short conversations. | Everyday survival topics and courtesy requirements. | Intelligible to an NS used to dealing with foreigners. |
| 0 | No functional ability. | None. | Unintelligible. |

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Pre-program levels of language are also reflected in predictor variables based on standardized qualifying examinations in Russian grammar and reading comprehension (Q-Grammar, Q-Reading), required of all program applicants. A further series of variables reflect results of the Modern Language Aptitude Test (MLAT). Separate scores on analytic, synthetic, and memory-based learning strategies (MLAT III, IV, V), are recorded along with an aggregate raw score, which can be compared as percentile to one of several norm groups consisting of US high school graduates, enlisted servicemen, or US foreign service officers. MLAT test results are based on the success with which candidates manipulate samples of an artificial language ("pseudo-Kurdish") and of English; the long-form MLAT (not included in the present data) also includes listening and alphabet mastery strategies.

In addition to the batteries of pre- and post-program testing noted above, other post-program performance variables include grade reports on spoken and written Russian provided by each of the Soviet institutions (on a scale of 1 "failure" to 5 "excellent") and a series of individualized attitudinal assessments, as rated by ACTR resident directors using a scale of 1 (low) to 5 (high), in the categories of "intellectual motivation," "natural ability to learn," "willingness to use Russian," "cultural adaptability," "willingness to take advantage of in-country cultural opportunities," "ability to work in a group," and "leadership potential." It is understood by the investigators and program administrators that the attitudinal assessments are subjective, but nonetheless, such evaluations, like course grading, are a routine part of the assessment process in American higher education and are typical of the kinds of evaluations required annually of university faculty in recommending candidates for graduate and professional schools.

## 2.2 The Pre-/Post-Listening and Reading Tests

Four 50-minutes tests (two forms each for reading and listening) are designed to be reliable as measures of reading and listening comprehension in the intermediate/high to superior range (1+ to 3 levels). Stimulus material in both sets of tests is drawn from a variety of natural language use (authentic) sources, relying in

particular on materials taken from the mass media. Reading passages are printed texts in Russian, ranging from short passages to assess extraction of factual information, to larger texts designed to measure comprehension and analysis. Listening passages, administered by means of a tape recording, contain material in Russian spoken by both males and females at normal speed, such as news broadcasts, interviews, and conversations. The testing format is multiple-choice with responses recorded on a separate machine-gradeable answer sheet. All questions are printed in the test booklets and are based on information presented in the stimulus material itself. Specific subject matter knowledge is not tested; for example, there are no questions that bear on literary criticism, linguistic terminology, or, say, statistical analysis. Task assignments are stated in English prior to each Russian passage, so that the examinee knows in each case his/her purpose in listening/reading the text. The overall format is typical of standardized testing in the US and very familiar to American students.

Whereas the boundary points between proficiency levels in both forms of the ETS Russian readings tests are the same, Form 2 of the listening comprehension is more difficult than Form 1, resulting in an adjustment in the weighing of raw scores:[9]

| ETS Listening | Raw Score | Raw Score |
|---|---|---|
| Proficiency Level | Form 1 | Form 2 |
| 3 | 44 - 57 | 43 - 57 |
| 2+ | 41 - 43 | 39 - 42 |
| 2 | 37 - 40 | 33 - 38 |
| 1+ | 31 - 36 | 27 - 32 |

## 2.3 The Pre- and Post-Program Oral Proficiency Interviews[10]

The OPI is a testing procedure designed to measure a wide range of functional speaking abilities from novice ("0") to that of an educated native speaker ("5"). In the course of the interview, the

student converses with one or two trained testers on a variety of topics for 10 to 40 minutes, depending on the level of the student's proficiency. The resulting speech sample, which is normally recorded on audio or video tape for subsequent verification or analysis, is then rated on a scale ranging from 0 (no practical functional ability in the language) to 5 (ability equivalent to that of a well-educated native speaker). "Plus" ratings (0+, 1+, 2+, 3+ etc.) are given to students who substantially surpass the requirements for a given level but fail to sustain performance at the next higher level. The rating is a single global indicator of the learner's probable ability to communicate in the target language/culture from the point of view of language functions, context/content areas, and acceptable levels of grammatical accuracy (Refer to Exhibit Four, the Functional Tri-Section for Speaking). As contrasted with an achievement test, which is based on specific material covered in a particular course of study, the proficiency test compares the student's ability to that of an educated native speaker using the language for actual communicative purposes.

The OPI was originally developed by the Foreign Service Institute (U.S. Department of State) as a means of verifying the foreign language skills of diplomats abroad. It was later adopted by the American Council on the Teaching of Foreign Languages and the Educational Testing Service for use in the American educational system, where it has received broad acceptance in recent years. Its relatively high degree of reliability is due in part to the rigorous training seminars which all OPI testers must undergo in order to become certified and to maintain themselves as testers. The OPI offers a degree of face validity to as well, in that it requires the candidate to speak in a realistic conversational setting. The content validity of the OPI is maintained by reasonably rigorous testing protocols which require trained interviewers always to test repeatedly for the functions, content, and accuracy that characterize each level.

Unlike the listening and reading tests, the OPI requires that at least one tester spend typically from 20-30 minutes to elicit a rateable sample from each candidate. The OPI is, therefore, a more time-consuming procedure than many traditional testing instruments; it is reminiscent of oral testing long established in Russian and Soviet academic examinations. The incidence of unrateable samples from this procedure is relatively low; furthermore, certified testers

independently assign to the same live or recorded OPI the same rating, or, occasionally differ by only a "plus" point.

The five-point proficiency scale is best visualized as a three-dimensional model resembling an inverted pyramid, with the novice-level of proficiency at the bottom and the native ("5") level at the top. (See Exhibit Four, Inverted Pyramid of Language Proficiency) The typical acquisition time of an English-speaking learner of Russian of above average/average language learning aptitude (for example, as measured by MLAT) is included in Exhibit Four.

## 3.0 Data Analysis

In this section we present some preliminary results on variables related to gains in language competence for students in the four-month ACTR programs. From the policy point of view, our aim is to establish the characteristics of students who gain and to isolate variables that discriminate between students who gain and students who do not. As a statistical study of correlates of gain, our approach is analogous to that of epidemiological studies of diseases and pharmacological studies of the effectiveness of drugs. In this mode, men over a certain age might be advised by their physician to take an aspirin every other day on the grounds that it lowers their risk of heart disease, even if the mechanisms are not known and even if some individuals may not derive any benefit. Analogously, in the present study our perspective is that of a program director and our emphasis is on effective placement and program management on a statistical basis. The issues involved concern placing students in programs which best serve their individual needs, such as at what stage of language learning can students take best advantage of study abroad? Which students should go, and when? What gross characteristics of programs and experiences are the most productive for given learners? Thus, on the basis of results such as ours, students with good grounding in grammar but little speaking proficiency might be advised to study abroad at a particular time and placed in particular programs.

From the point of view of the acquisition process itself, our analysis provides the factual context for more detailed scientific studies of what students learn and how they learn it. Our aim here is to

establish robust relationships that require explanation and to suggest hypotheses that might guide subsequent research. Broadly speaking, explanations of relationships fall into three categories, all of which are represented below: specification of other variables which could account for the connection, e.g. differences in language gains between men and women might be accounted for in terms of their educational goals or their overall academic performance; specification of causal processes at a microlevel that produce the observed relationships, e.g. differences in gains between men and women might be accounted for in terms of differentials in the structure of conversations with native speakers which affect the learning process (this would be analogous to microbiological studies of how viruses affect cells); and specification of artifacts in measures and statistical procedures used in the analysis, e.g., variables may lack explanatory power because the oral proficiency interview is not sensitive enough, at a particular levels of proficiency, to capture the benefits of four months study abroad, or because a gain of a level may be much easier at the intermediate than at the advanced level. Although all of these types of explanation in the final analysis call for more and better data, we shall see that the results based on the data available are pertinent to many of the questions commonly raised in the field and strong enough to draw conclusions that are not purely speculative.

## 3.1 Analytical Methods

The results we shall present were for the most part derived using regression analysis. Regression analysis is a family of statistical techniques which permits assessment of the effects of several factors simultaneously, and, more importantly, produces estimated relationships between the criterion (dependent variable) and its determinants (independent variables) which are purged of effects of other variables which could affect them. This is not the place to go into the technical details of our statistical methods. Indeed we shall only present a qualitative summary of our results here, leaving fuller discussion for a forthcoming study.[11] Intuitively, the motivation of our methods and an indication of how the results can be interpreted are captured in the old cliche that correlation does not imply causality. The more firemen there are at a fire the worse the damage, and the more storks there are in an area the higher the birth rate, but that does

not mean that firemen cause damage or that storks bring babies. Clearly in the former the severity of the fire, and in the latter whether an area is rural or urban, must be taken into account, i.e. brought under control, before any meaningful relationships can be stated. Similarly, to take a somewhat whimsical example from Mosteller and Tukey, in examining the relationship between performance on a French dictation test and body weight, one would find a strong positive relationship if the sample contained children ranging in age from eight to sixteen (with the older children being heavy and more accomplished in French and the younger children being light and less accomplished), a strong negative relationship if the sample were restricted to sixteen-year-olds but contained a mixture of French (lighter) and American (heavier) students, and a weak negative relationship in a sample of sixteen-year-old Americans containing girls (on average lighter and better at French) and boys. Again, in order to interpret the observed relationship, the population in which it occurs must be specified and key variables related both to French proficiency and body weight (age, nationality, gender, as the case may be) isolated and controlled. Regression analysis is a way of exercising this needed control statistically, purging estimated relationships of the effects of many extraneous factors simultaneously, and leading to estimated effects which, while not guaranteed to be free of spurious effects, at the least cannot be explained on the basis of any other variables that are explicitly included in the analysis.

In our investigation of the determinates of gain during study abroad we examined all three language proficiency measures for which pre- and post-tests were available, *viz.* oral proficiency as measured by the OPI, and listening proficiency and reading proficiency, as measured by the ETS tests. Gain, the dependent variable in our analysis, is defined as the difference between before and after ratings. In the case of the OPI, where ratings are in terms of discrete categories, several binary criteria based on changes were used (see below). In the case of the ETS tests our analysis is based on the raw scores. Because the before and after tests are not equivalent in difficulty, the difference in scores is not meaningful per se, but the estimated effects in the regression analysis are still valid. As independent variables, i.e. factors that could account for differentials in gain, we considered all of the variables in the ACTR database described in the previous section. Regression equations (logit

regressions in the case of the OPI, ordinary least squares in the case of ETS listening and reading) were estimated to determine effects, controlled for the influence of other variables, based on all cases with valid data. (The total number of observations varied from analysis to analysis, since ETS tests were administered starting in 1986 while OPIs were administered to everyone starting in 1984, and since in both cases there were a small number of students for whom scores were not available.)

## 3.2 Oral Proficiency

We look first at factors related to gains in oral proficiency as measured on the oral proficiency interviews (OPI's) taken at the pre-program departure orientation and in the Soviet Union just at the end of the four-month program. Exhibit Five shows the overwhelming effect of initial proficiency level on the likelihood of gain, an effect which is equally strong no matter what other variables are controlled. For those starting at 0+ (novice high) everyone improves; among those who begin at 1 (intermediate), by far the largest group, only 14% do not gain and almost 30% gain two or more points, reaching the advanced category; among the 1+'s (intermediate highs), 28% show no gain, although again more than 30% gain two or more; among advanced students (2, 2+, and 3) about 55% show no gain, although many still make significant improvements. These results can be explained partly by the testing artifact noted above that as one moves up the OPI rating scale, ever expanding language skills are required (so that the scale points (0+, 1, 1+, 2, etc.) are further apart as one moves up), and partly by the general nature of learning curves for complex skills, where a given increment requires increasing time and effort as proficiency increases. Whatever the reason, it is essential to control for initial level in examining the effects of any variable that might be related to gain.

With Exhibit Five in mind, three analyses of factors related to OPI gains were run. In the first we used the straightforward criterion of no gain vs. gain (i.e. those in the first column of the table vs. the rest), with initial level controlled quantitatively in the logit regressions. In a second analysis we tried to compensate for the fact that it is easier to gain at the lower levels than at the higher by

equating students who started at 0+ and 1 and gained only a half a level (1 point) with nongainers at the higher levels, thus contrasting students gaining 2 or more starting at 0+ and 1, and students gaining 1 or more at 1+ and above, with the rest (right vs. left of the heavy line in the table). In a third analysis we confined our attention to students who were initially at 1 (the group large enough to study by itself), thus automatically eliminating any effects of initial level, and examined factors related to gains of two or more (i.e. gains from intermediate to advanced on the OPI scale).

Our analyses indicate that only a few variables in the database are related to OPI gain when proper control is exercised, no matter what criterion is used. (The logit regression results are confirmed by tree structured regression, a very different statistical technique, to be reported in a subsequent publication.) Two variables are highly significant on all criteria:

- the higher the scores on the ACTR qualifying reading test, the more likely a student is to gain, and
- men tend to gain more than women.

The effect of good reading skills on oral proficiency gains is particularly strong among initial 1's moving into the 2 category (OPI analysis 3 above). As expected, initial OPI level had an extremely strong effect on gain, even with all the other variables controlled, which implies that the nature of the scale or the learning curve, rather than differences in preparation or motivation, are at work. With the stricter, second criterion, requiring gains of 2 or more at the low levels, the effect of initial OPI on average disappears, implying that the criterion adjusts for initial level.

On the simple gain vs. no gain criterion, two further variables are significant:

- students in earlier years of the program (1984) gain more often than students in more recent years (1989), and
- students with knowledge of other (non-Slavic) languages gain more than students whose only foreign language is Russian.

## Exhibit Five

## Gain in OPI by Initial Level*

*Gain*
*(Based on Post-Program OPI Rating)‡*

| Pre-Program OPI Rating | 0 or loss | 1 | 2 | 3 or more | Total |
|---|---|---|---|---|---|
| 0+ | | 14† (54) | 10 (39) | 2 (8) | 26 |
| 1 | 35 (14) | 151 (58) | 56 (22) | 18 (7) | 260 |
| 1+ | 27 (28) | 39 (41) | 29 (30) | 1 (1) | 96 |
| 2 | 23 (55) | 19 (45) | | | 42 |
| 2+ and 3 | 12 (60) | 8 (40) | | | 20 |
| | 97 | 231 | 95 | 21 | 444 |

*Heavy line defines the second criterion of gain.

†Number (percent) of students (subjects in sampling)

‡Given a scale of:
0+
1
1+
2
2+
3

a gain of "1" in the present analysis indicates movement from one level on the proficiency to the next rating level; a gain of 2 indicates an increase of 2 levels: 0+ to 1+, 1 to 2, 1+ to 2+.

There are also significant differences in simple gains between the five institutes in which students take courses, although they are difficult to interpret on the basis of difference in the formal, in-class programs. Among the students starting at 1 there is some evidence that younger students are more likely to make substantial gains than older students, although the effect is not highly significant statistically. Rounding out the main analysis, there is some indication that the more lab hours and the less classroom hours students have had in their previous courses the better they do. These results are, however, somewhat ambiguous because these variables are highly correlated with one another and with other key variables in the analysis. Since both class and lab hours are important determinants of initial language levels, interpretation of their effects must be based on factors associated with education but not measured by any of the tests. Finally with regard to oral proficiency, there is intriguing evidence that the resident directors' ratings of motivation and attitudes are significant indicators of gain. In particular, on all criteria, leadership potential is clearly positively related and ability to work in groups clearly negatively related to gain; native ability, willingness to use Russian, and cultural adaptivity have positive but less certain effects. These results must be considered preliminary, however, since resident director ratings are missing in the database in some cases and since these variables are very highly intercorrelated.

In interpreting the regression results it is important to remember that the effects attributed to variables noted above hold over and above those of any other variables in the analysis. Or, to put it slightly differently, the effects reported here cannot be explained by any other variables in the database. Thus, for example, better readers by and large have higher oral proficiency scores, but the results say that at every level of initial proficiency a better reader is more likely to gain than a poorer one. Similarly, there are many differences between men and women in academic achievement, motivation, etc., but the somewhat counter-intuitive result that men do better than women in the programs we study holds after all other differences attributable to variables we have measured (language aptitude, major field of study, previous preparation, mastery of other languages, etc.) have been ruled out as possible explanations. The explanation of gender differences must, accordingly, lie in factors we have not measured, such as differences in the nature of language learning experiences that

men and women have while in the Soviet Union. We shall return to this point below.

It should also be noted that many variables which one might think *a priori* are important turn out not to be associated with OPI gain in our data, once the key factors mentioned above are taken into account and controlled. These include: language aptitude, as measured by the MLAT's, major field of study, highest degree earned, and participation in a previous immersion program.

## 3.3 Listening Proficiency

We turn now to gains in listening proficiency as measured by changes on the ETS test. For the most part, students on the ACTR programs start at the intermediate level (1 and 1+), although some are in higher categories. As with the OPI, there is an extremely strong, negative relationship between initial level and gain (with a t-statistic in the regressions over 10). Controlling for initial level, several variables are significantly related to gain, most of which were found to be significant for oral proficiency as well:

- younger students gain substantially more on average than older students;
- men gain more on average than women;
- students with knowledge of other, non-Slavic languages gain more on average than students with no other languages;
- students gain more on average if they have been involved previously in an in-country immersion program;
- students with high language aptitude, as measured by the MLAT, gain substantially more on average than students with low aptitude;
- students with high qualifying reading scores gain substantially more on average than students with low scores.

There are also quite significant differences associated with the institute in which the student is enrolled, but as with the OPI these effects are difficult to interpret without further analysis. There is some indication that lab hours are positively related to gains, but the effect

is not statistically significant by the usual criteria and should therefore not be interpreted here. Save for the difference between men and women, which is consistent with the results on the OPI, all of the relationships noted above are in the expected direction.

## 3.4 Reading Proficiency

Finally, we look at changes in reading proficiency. Over 40% of ACTR students are already advanced readers when they begin the program, but there is still room for gain on the ETS test. In addition to initial level, which in this case too has an extremely strong effect,

- language aptitude (MLAT) is very strongly, positively related to gain;
- scores on the ACTR qualifying grammar test are also positively related to gain, although this effect is difficult to separate from a similar positive effect of the qualifying reading test;
- knowledge of other (non-Slavic) languages is positively related to reading gain.

There are also strong differences among institutes. Even with reading, the sex effect favors men, although its magnitude is not quite large enough to reach statistical significance.

In concluding this presentation of results, let us reiterate that the effects noted here are genuine in the sense that they cannot be accounted for by any other variables in the study, and they must stand to the extent that no obvious variables characterizing students before entry into the ACTR program (at least), are left unmeasured. Moreover, variables in the ACTR database which do not have statistically significant effects are in all likelihood unimportant predictors when the significant variables are taken into account. Of course, there are many variables affecting gain which we have not measured, in particular variables characterizing what happens during the student's period of study in the Soviet Union. Measuring these would help to give us a much firmer grasp of the nature of the learning process and of the mechanisms by which the variables in this study have their effects. We return to this discussion in the concluding section.

## 4.0 Discussion

Significant gains in language proficiency are achieved by a wide variety of American college-level learners of Russian as a result of their in-country immersion experience. Of particular interest in this connection are gains resulting in post-program oral and listening proficiency in the 2-range ("advanced") or higher, skill levels rarely attained by graduates of stateside B.A. programs in Russian. On the OPI (see Exhibit Five) 28% of the initial 1s make the large jump to 2 and above and of the 1+s fully 72% cross the 2 barrier. On the ETS listening test (with scores converted to proficiency ratings according to the table in section 2.2), 45 % of the 280 students rated as 1 at the start of the program (the bulk of the sample) make the big leap to 2 and above, and 77% of the 48 initial 1+s cross the 2 barrier. Very substantial gains in reading are common as well. Twenty-four percent of initial 1s and 60% of initial 1+s reach 2 and above. Of particular interest are the significant number of students who reach the 3 -level ("superior") in reading -- 8% of initial 1s, 17% of initial 1+s, 45% of initial 2s, and 57% of initial 2+s -- so that at the end of the program fully 27% of the 316 students not there to begin with reach the highest possible level of this test, a level considered adequate for regular professional activity requiring the use of Russian . All in all, comparable levels in all three skills are obtainable only by further immersion study and/or comparable programs. (We shall analyze the effects of Soviet Academic Year Programs in a forthcoming paper.)

## 4.1 Oral Proficiency

Among key determinants of gain in Russian, qualifying grammar and reading achievement scores show significant predictive value for oral proficiency, reading proficiency, and listening proficiency alike. Higher levels of control of basic grammar and reading skills, as measured by Q-Grammar/Q-Read, correlate positively with gain in all three skills. Although the data indicate that the lower the initial proficiency level the greater the gain — an effect which is partly an artifact of the proficiency scale (see Exhibit Four), and partly a result of the learning curve itself — the significant fact is that at any given initial level the better prepared one is in reading/grammar the more one tends to gain. This finding and the size

of the sample on which it is based has significance for the on-going debates in the foreign language acquisition field (especially following Higgs and Clifford, 1983) concerning the role of explicit grammatical knowledge in the development of communicative skills, as well as for our understanding of the interrelationship of the several skills in the acquisitional process. Given its importance, additional research should be devoted to replicating the results of the present study.

With respect to the usefulness of the numerous testing instruments involved in the present study, it can be concluded that the now 30-year-old Modern Foreign Language Aptitude Test (MLAT) is a valid predictor of success in developing reading and listening skills in Russian; the MLAT, however, does not serve to predict oral proficiency gain as measured by the standard OPI. Further analysis of the role of attitudinal factors affecting gain (especially leadership ability, but also cultural adaptability, and motivation) is important, particularly the extent to which these factors can be seen to compensate for deficiencies in other areas also known to affect proficiency gain.

The dramatic increase in opportunities for study in the USSR during the past five years has made it possible to attract a more diverse student population to the programs with initial skill levels that more closely approximate those of the typical US undergraduate major. In the early years of the present study, graduate students and teaching assistants made up a large percentage of all ACTR in-country semester placements, while Soviet admission regulations excluded from participation in these programs virtually anyone other than current and future teachers of Russian. Although there does not seem to be any relationship between college major and gain in our data, further analysis of the performance of program participants by disciplines as well as by host institutions is needed before it will be possible to interpret the program-year effect. It would be difficult to deny that the opening of Soviet society under Gorbachev has made study in that country more stimulating intellectually for American students than ever before, even as it has multiplied the possibilities for significant cultural immersion within Soviet society. In short, all our evidence indicates that the programs in recent years are academically stronger than in years past; the explanation for the "year-effect" remains elusive.

## 4.2 Reading and Listening Proficiency

The above results indicate that gain, as measured by OPI, ETS Listening, and ETS Reading, respectively, is positively correlated with a students' knowledge of another (non-Slavic) foreign language. (Most often, French, German or Spanish.) Controlling for language aptitude (MLAT) and for motivation (as indicated by the resident director evaluations), one plausible interpretation is what might be termed the "skilled second language learner" effect, which involves more efficient use of specific kinds of cognitive strategies for communicating in natural environments and for expanding one's linguistic knowledge on the basis of this communication.[12] Clearly, more data concerning the influence of previous second language experience on learning in and outside of class is needed, data which would include ethnographic observations on behavioral differences between skilled and non-skilled language learners particularly in real communication tasks in natural environments.

Another factor in the acquisitional process, which our data and analysis reveal, is the effect of a previous immersion experience on the rate of gain in listening skills. The beneficial effect of a previous immersion experience seems logical, even if little investigated to date. Students who have had significant experience in communicating successfully under uncontrolled conditions (i.e., outside of the classroom with native speakers) might well be expected to have developed specific comprehension strategies transferable to the in-country environment of the ACTR programs. As is the case with students with previous second language experience, more information will be required to determine how and to what extent learning opportunities are expanded for students who return to an immersion environment.

## 4.3 Other Observations

A further notable finding of this study is that, when other important factors are controlled, the gains as measured by the OPI and the ETS Listening tests are significantly higher for males than for females. A comprehensive analysis of this phenomenon requires ethnographic study of communicational interactions in-country, both

in and outside of classroom, to determine whether culturally-defined gender roles have an impact upon communication and upon learning opportunities.

In the area of reading proficiency gain, younger students experience somewhat greater success than their older colleagues. Age traditionally is assumed to play a role in second language acquisition, but mostly with regard to children versus young adults.[13] Our study does not include the acquisition of a second language by children; it deals with learners in the 19-39 year age group and stands, therefore, outside of the bulk of SLA literature on age differences in the acquisitional process, awaiting further investigation and/or replication.

## 5.0 Next Steps

The results of the preceding analysis correlating gain with a range of independent variables reveal significant information concerning SLA in the study-abroad environment. However, as the database grows and as more variables and programs are added, it is clear that much more analysis and interpretation needs to be done. In addition, as the present project begins to yield important insights into the impact of study-abroad, the questions provoked by these results have led to a second major project in the overall study of SLA in study-abroad environment, undertaken by the NFLC with the support of the Ford Foundation and in cooperation with ACTR. The new project hopes to provide more discrimination both in the evaluation of "gain" and in the input and processing factors which characterize study-abroad.

Given its decreasing ability to reflect changes at the advanced level and beyond, there is little hope that the OPI can serve as a criterion for systematic research. There is a need for more discriminating measures of skills in the advanced range before quantitative studies can be fully exploited. To determine factors associated with gain during study abroad, the structured and unstructured learning environments must be carefully observed, both in terms of actual L2 input and in terms of individual and socially distributed learning processes. The Ford Foundation has funded the next project in the ACTR/NFLC long range analysis of study abroad.

Ethnographic data will be integrated with and conditioned on variables found to be significant in the present study, including gender, previous immersion, knowledge of other languages, and control of basic grammar.

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[1] The ACTR data base, begun in 1976, is growing at the present rate of approximately 120 student profiles a semester. Plans are to extend the base to ten-month and summer students as well.

[2] As a rule, administrators of most foreign language programs in American schools and universities are themselves untrained in second language acquisition and often unaware of SL research. For the most part, the chairs are literature specialists or linguists, who may or may not have direct experience in the language teaching classroom. In the United States, the deans and other upper level administrators to whom they report and from whom they receive budgets are often scholars who may lack personal experience with foreign languages.

[3] An examination of the factors internal to study-abroad SLA can be revealing and suggest the need for a contrastive study with immersion domestic programs.

[4] Swaffar (1989) characterizes these changes as a shift in paradigm, in the Kuhnian sense. See Kuhn, Thomas. *The Structure of Scientific Revolutions*. 2nd ed. Chicago: University of Chicago Press, 1970.

[5] As Ellis (1986:18) puts it, "A theory of SLA is an attempt to show how input, internal processing, and linguistic output are related." See Ellis, Rod. *Understanding Second Language Acquisition*, 1986, Oxford University Press. Exhibit One is an elaboration of similar schemas in Ellis 1986.

[6] The present study shares elements of approach with a recent study conducted by the European Science Foundation; both studies are empirical, multi-year, cross-sectional and longitudinal investigations of the acquisition of language in an immersion environment. However, while the ESF project investigates spontaneous second language acquisition on the part of migrant workers in Western Europe, we are focused on advanced-level SLA in structured learning programs with an in-country immersion component. In contrast to the ESF project, which measures language gain by means of a series of non-standardized instruments and observations, the ACTR/NFLC study takes as its starting point the set of measurement instruments employed across the academic and governmental language teaching profession. The advantages of this more traditional approach are obvious. Equally important, though, is the fact that this approach provides an unprecedented opportunity to evaluate the testing instruments themselves, or to determine just what they are testing. See also Clive Perdue, ed. *Second Language Acquisition by Adult Immigrants: A Field Manual*. Rowley, MA: Newbury House Publishers, 1984.

[7] See Dan Davidson, "Assessing Language Proficiency Levels of American Participants in Russian Language Programs in the Soviet Union," *Russian Language Journal*, XXXVI, No. 125, 1982, 221-232.



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[8] Of the 3000-odd two and four-year colleges in the U.S., approximately 475 offer regular Russian language training, of which, approximately 245 include undergraduate major programs, 75 M.A.-level programs, and 35 Ph.D.-level programs in language and literature. Summer "intensive programs" are reasonably common at B.A. and graduate-level institutions and provide comparable contact hours during two summer months as would normally result from a two-semester through-the-year course (i.e., 100-140 hours). A special role in accelerating the language training of American students has been played by the *intensive-immersion* type, providing in the vicinity of 250-contact hours of training within the controlled environment of an "around-the-clock" cultural enhancement and residential program. The Middlebury Summer School is the oldest such program in the US, with similar long-standing immersion programs in place at Bryn Mawr College, Indiana University, and Norwich University. These summer immersion programs admit qualified students from throughout the US and abroad.

[9] Detailed information on the methods of calibration and norming of the ETS advanced-level reading and listening tests used in this study are reported in the ETS publication, *Russian Proficiency Test.* Test and Score Manual, Princeton, New Jersey, 1986. Of the approximately 500 American university students taking part in the norming of the ETS tests in 1985-6, only 2% tested at the "superior" level (3) in listening, while 12% tested at that level in reading; of these, more than half were in their fifth year of formal study of Russian or beyond. While 78% of the norm group scored below 1+ on the listening exam, including nearly half of those in their fifth year of study or beyond, only 31% scored below 1+ on the reading exam, including 12 of the 42 persons in their fifth year of study. In-country performance data in reading, and especially in listening comprehension development, is of particular interest given the obvious inadequacies of stateside training in these skills.

[10] The Oral Proficiency Interview (OPI), as adapted for use in US academic settings, has been well described in the literature, especially after 1982: Educational Testing Service. *ETS Oral Proficiency Testing Manual.* Princeton, 1982; (Pardee Lowe, Jr., "The ILR Oral Interview: Origins, Applications, Pitfalls, and Implications," *Die Unterrichtspraxis* 16 (1983), 230-232; Judith Liskin-Gasparro, "The ACTFL Proficiency Guidelines: An Historical Perspective," *Teaching for Proficiency, the Organizing Principle*, ed. Theodore V. Higgs, Lincolnwood, IL, 1984, 11-42; also, see Claire Kramsch, "Proficiency versus Achievement: Reflections on the Proficiency Movement," *ADFL Bulletin*, 18, No. 1, September 1986, 22 - 24. Lyle Bachman and Sandra Savignon, "The Evaluation of Communicative Language Proficiency: A Critique of the ACTFL Oral Interview," *Modern Language Journal* 70, 1986, 380-390; Heidi Byrnes, "Speech as Process," *Foreign Language Annals*, 20, No. 4, 1987, 301-310. Russian-specific proficiency guidelines were published by ACTFL under USED contract in 1984 (preliminary) and released along with generic guidelines in 1986: American Council on the Teaching of Foreign Languages. *ACTFL Proficiency Guidelines.* Hastings-on-Hudson, 1986. See also Dandonoli, P., G. Henning, "An Investigation of the Construct Validity of the ACTFL Proficiency Guidelines and Oral Proficiency Interview," *Foreign Language Annuals*, 23, No. 1, 1990, 11-22.

[11] R. Brecht, D. Davidson, R. Ginsberg, "Advanced Acquisition of Russian in a Study Abroad Environment. A Longitudinal Study of Skills Development," forthcoming.

[12] Published work on the subject of communication strategies refers to "reduction" and "achievement" strategies, the former referring to avoidance conduct when faced with a communication "breakdown" and the latter to compensation. The assumption that learning is enhanced by compensation strategies which attempt to keep to the task at hand and to elicit the required knowledge. See Ellis 1986 (187 ff.) for a discussion of the literature on the subject.

[13] See the references in Ellis 1986: 104 ff.